



GAMMA RAY NEUTRON LOG

PIONEER
Pioneer Energy Services

Company **EXPEDITION WATER SOLUTIONS LLC.**

Well **EWS #3A**

Field **WATTENBERG**

County **WELD** State **CO**

Location: API #: 05123438800000

Other Services

SHL: 2528' FNL & 1045' FWL

SEC 23 TWP 4N RGE 66W

NONE

Permanent Datum GL
Log Measured From KB 13
Drilling Measured From KB
Elevation 4726'
Above Perm. Datum
K.B. 4739'
D.F. 4739'
G.L. 4726'

Date of Service 23 JAN. 2017

Run Number 1

Depth Driller or PBTD 12259'

Depth Logger 11660'

Bottom Log Interval 11660'

Top Log Interval 10600'

Open Hole Size 6.125"

Type Fluid WBM

Fluid Level N/A

Fluid Density N/A

Max. Recorded Temperature N/A

Max. Wellhead Pressure 80 PSI

Wellhead Connection 4 1/16" 10K

Estimated Cement Top N/A

Unit Number P-57

Wireline Size 9/32"

Location FT. MORGAN

Recorded By S. STUMP

Witnessed By

Size

Wt/Ft

Top

Bottom

7"

N/A

0'

10550'

4.5"

N/A

10550'

12259'

Production Casing

Liner Record

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All interpretations are opinions based on inferences from electrical or other measurements and Pioneer Wireline Services, LLC cannot and does not guarantee the accuracy or correctness of any interpretation, and Pioneer Wireline Services, LLC will not be liable or responsible for any loss, costs, damages, or expenses incurred or sustained by anyone resulting from any interpretation made by any of our officers, agents or employees.

Comments

N/A DENOTES NOT AVAILABLE OR NON-APPLICABLE.
80 PSI ON WELL WHILE LOGGING

S.O. 2-260296

THANK YOU FOR USING PIONEER ENERGY SERVICES!

Your Pioneer Energy Services Crew

Engineer: S. STUMP
Operator: M. GARCIA
Operator: J. GOFF
Operator:

Tool Data - Services

CCL
GR
CNT

Serial Number

FW1405-41
FW1406-4
120508

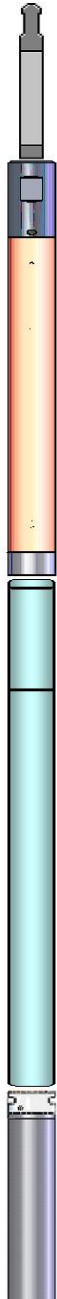
Top - Bottom


BOREID in 6.125	BOTTEMP degF 270	CASED? Yes	CASEOD in 4.5	CASETHCK in 0	CMNTTHCK in 0	CMTTKCOR On	CSTKCOR On
NPORSEL Sandstone	PERFS 0	SRFTEMP degF 0	SZCOR On	TDEPTH ft 0			


Variable Description

BOREID : Borehole I.D.
BOTTEMP : Bottom Hole Temperature
CASED? : Cased hole ?
CASEOD : Casing O.D.
CASETHCK : Casing Thickness
CMNTTHCK : Cement Thickness
CMTTKCOR : CN CemThk. Cor. ?

CSTKCOR : CN CasThk. Cor. ?
NPORSEL : Neutron Porosity Curve Select
PERFS : Perforation Flag
SRFTEMP : Surface Temperature
SZCOR : CN Size Cor. ?
TDEPTH : Total Depth

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
CCL	9.96		Cable Head-Titan 1 11/16" Titan Cable Head	1.03	1.69	2.00
			CCL_Logging-275 Probe Big Bore (FW1402.75) Probe 2 3/4" Big Bore Logging CCL	402.75	2.75	30.00
GR	6.08		GR-275 Probe Dig (FW1406-4) Probe 2.75" Gamma Ray Digital	3.36	2.75	40.00

CNLSC	2.05		CNT-275BL (120508) Probe 2.75 Digital CNT	5.00	2.75	76.00
	CNSSC	1.64				
			Bullnose-Titan GO Pin Pressure Cap	0.27	1.38	1.00
Dataset: 2-260296.db: field/well/run1/MAIN Total length: 12.41 ft Total weight: 149.00 lb O.D.: 2.75 in						

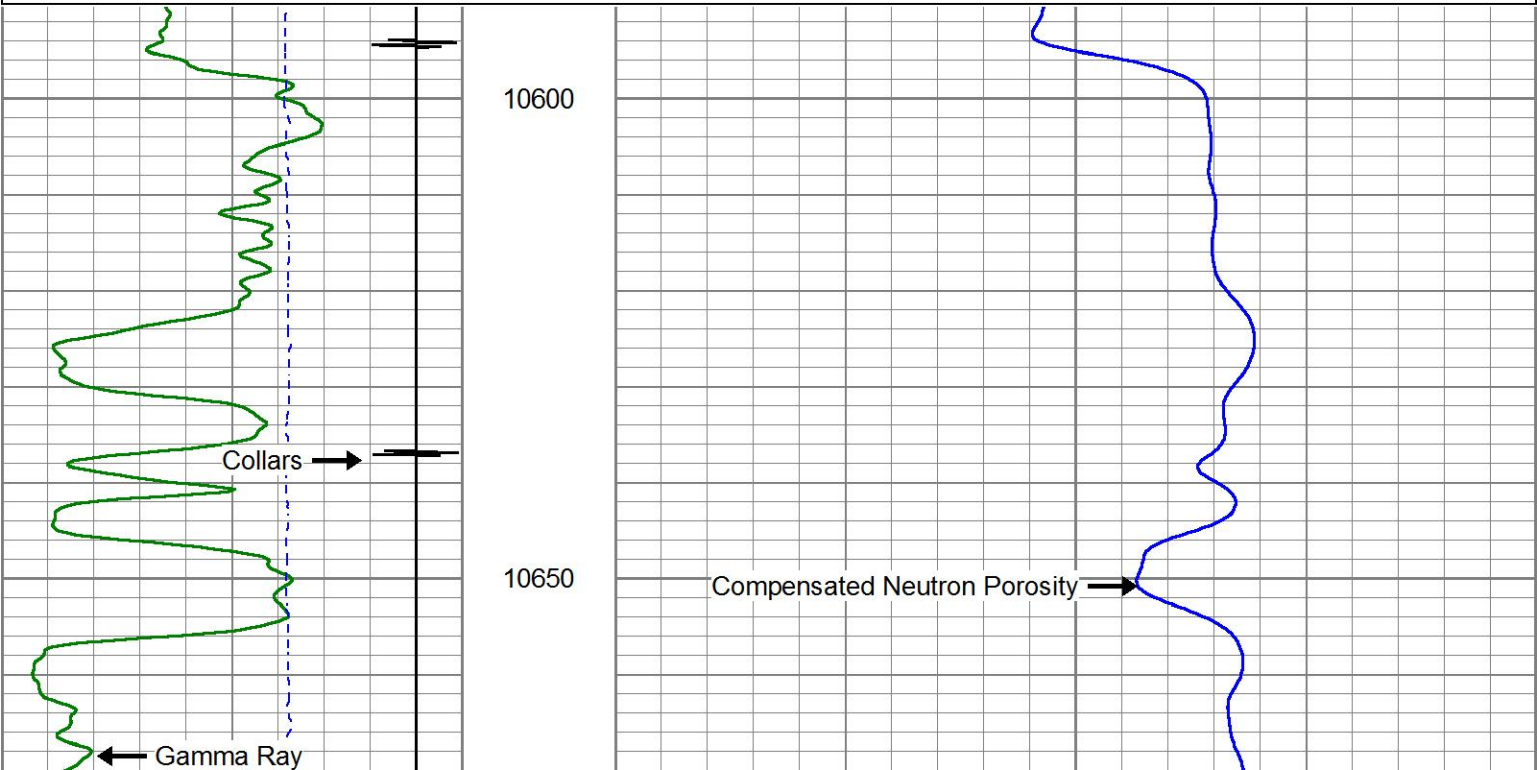


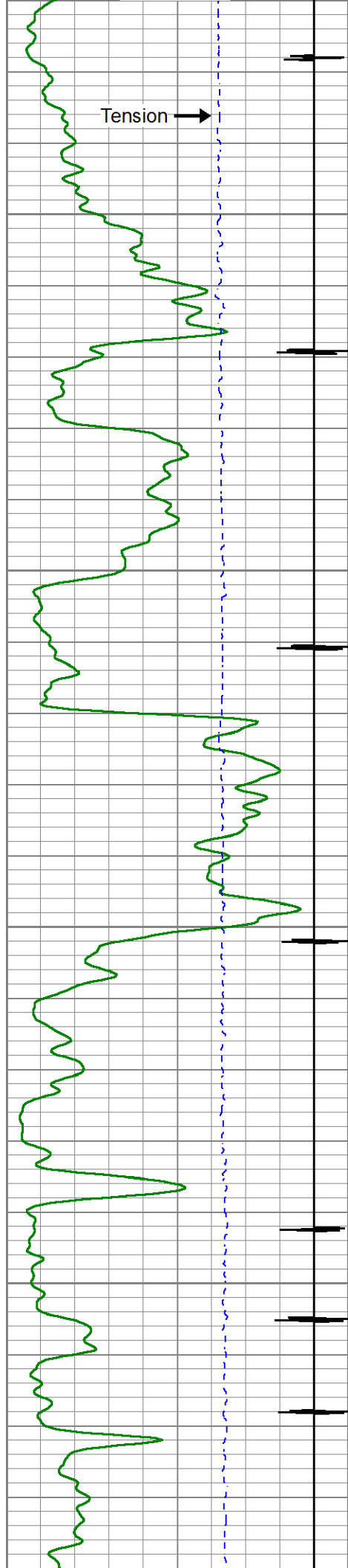
MAIN PASS

80 PSI ON WELL WHILE LOGGING

Database File	2-260296.db
Dataset Pathname	MAIN
Presentation Format	pinr_cnl
Dataset Creation	Mon Jan 23 15:54:07 2017
Charted by	Depth in Feet scaled 1:240

0	Gamma Ray (GAPI)	150	30	Compensated Neutron Porosity (pu)	-10
-9	Collars	1			
0	Tension (lb)	3000			





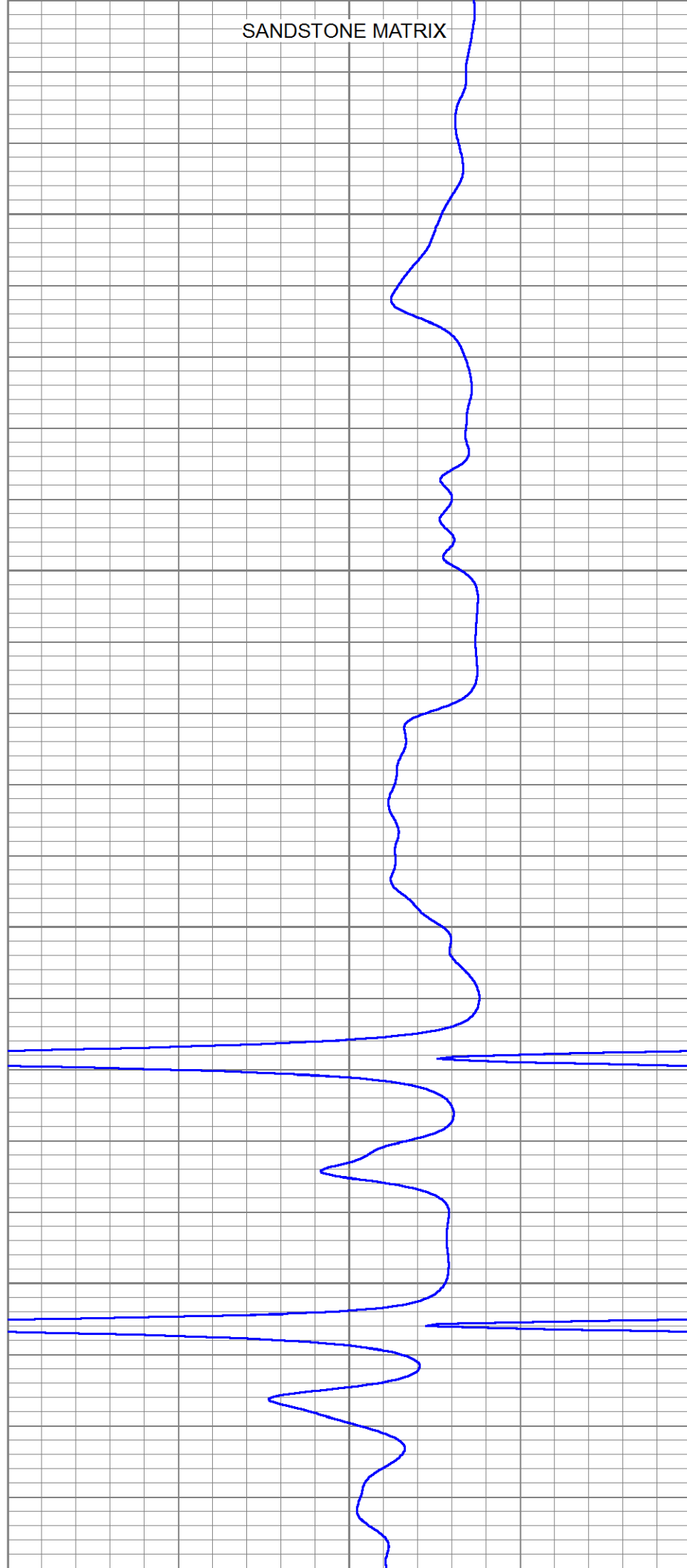
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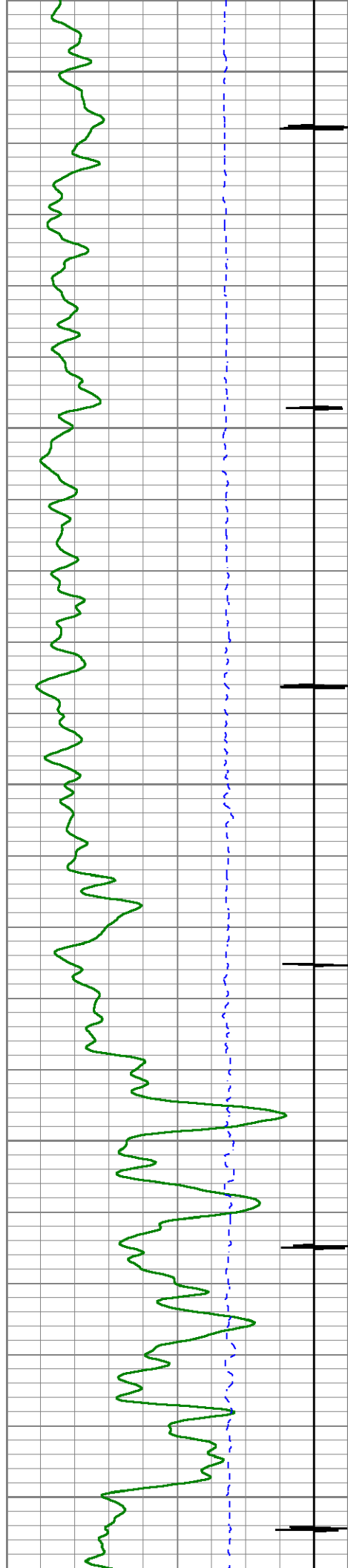
10750

10800

10850

SANDSTONE MATRIX





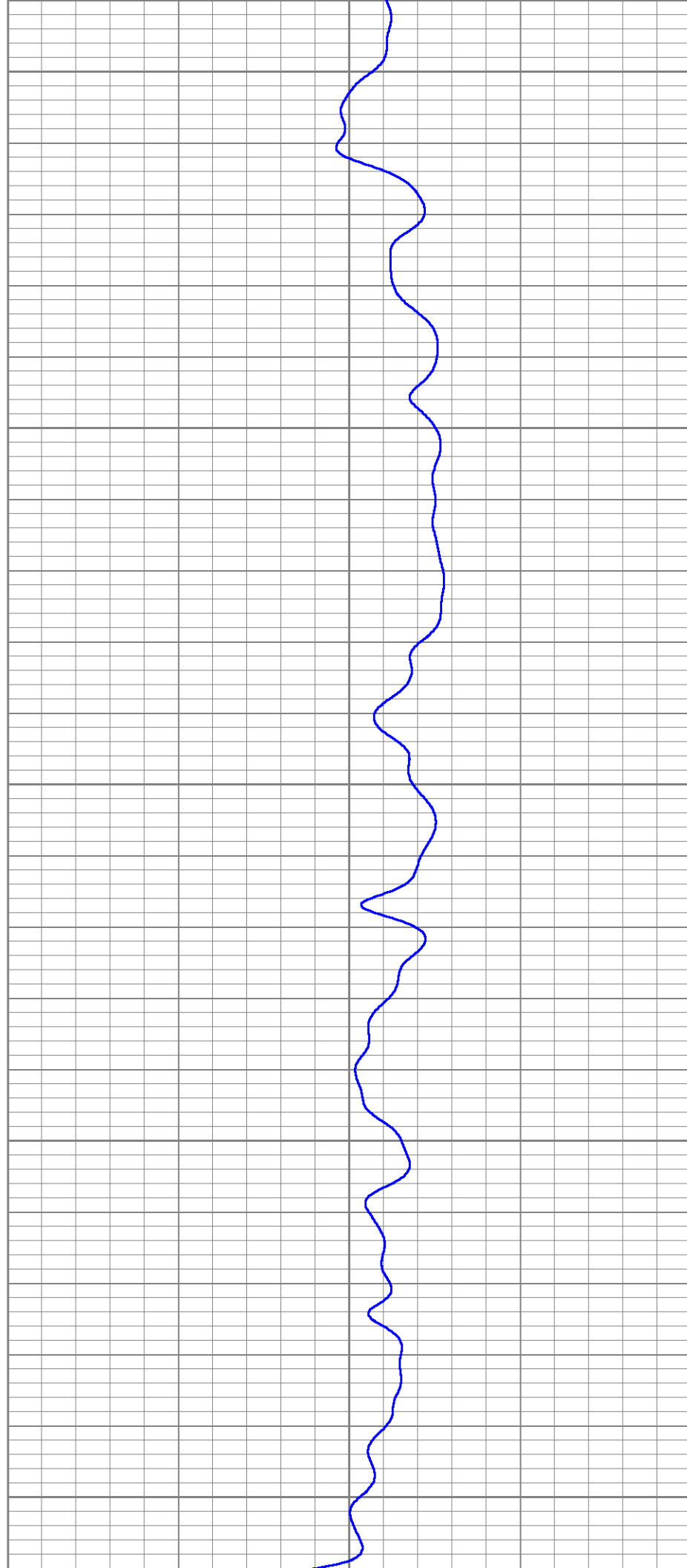
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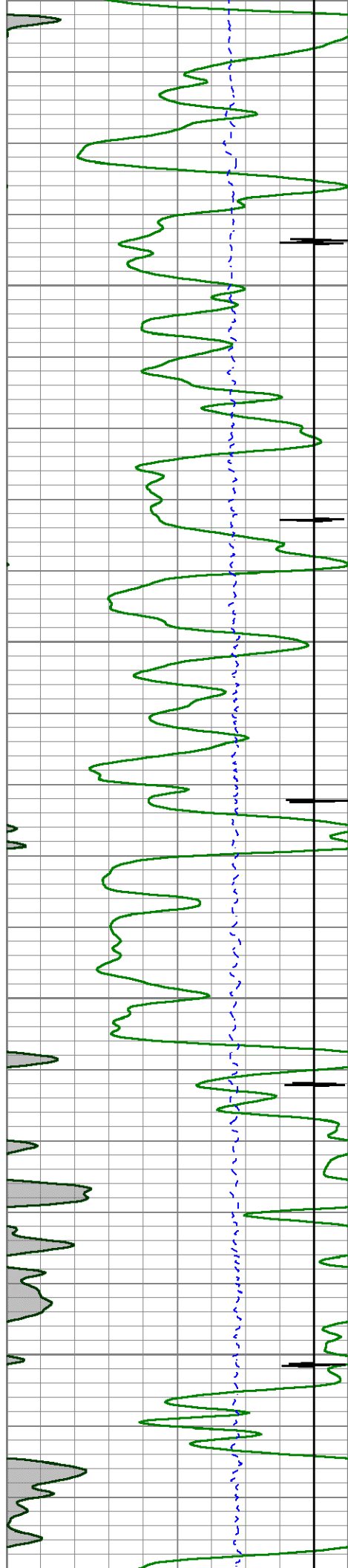
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11050

11100



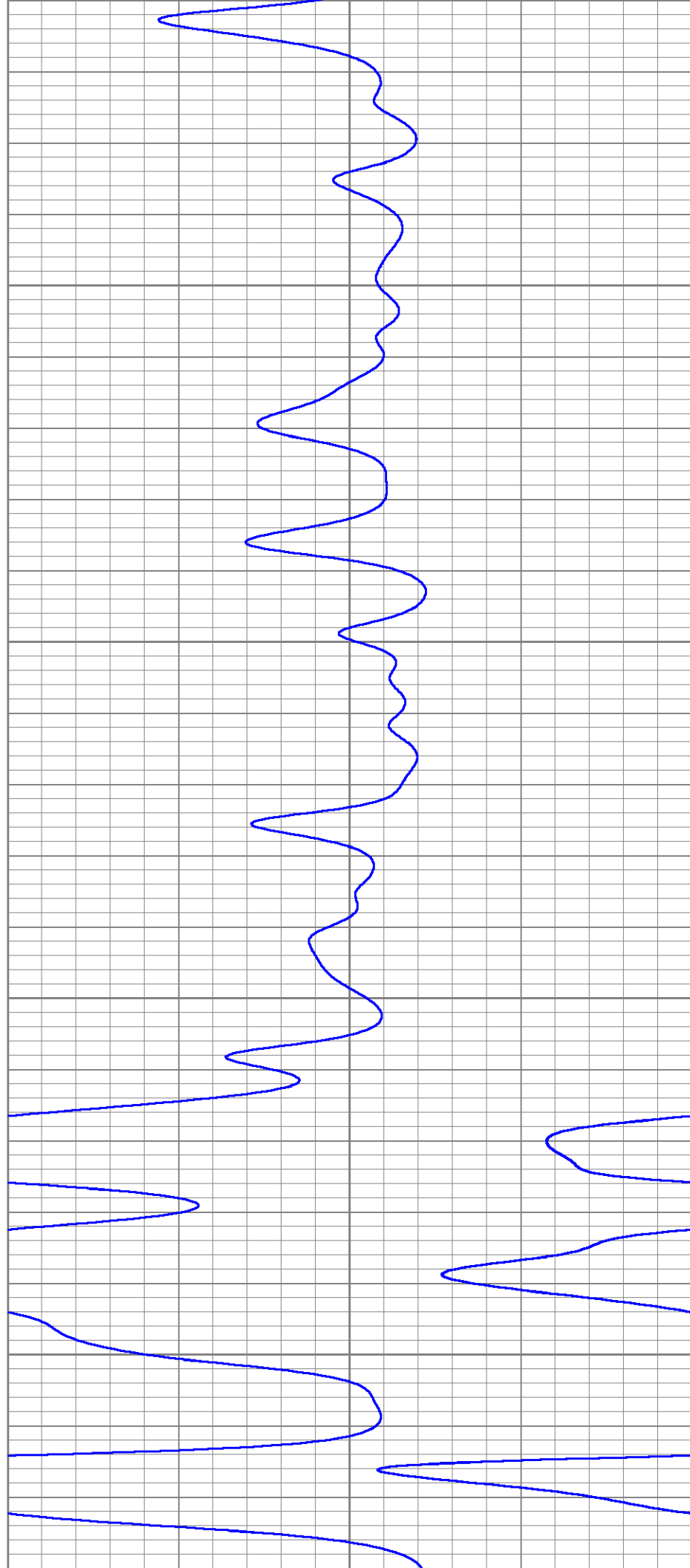


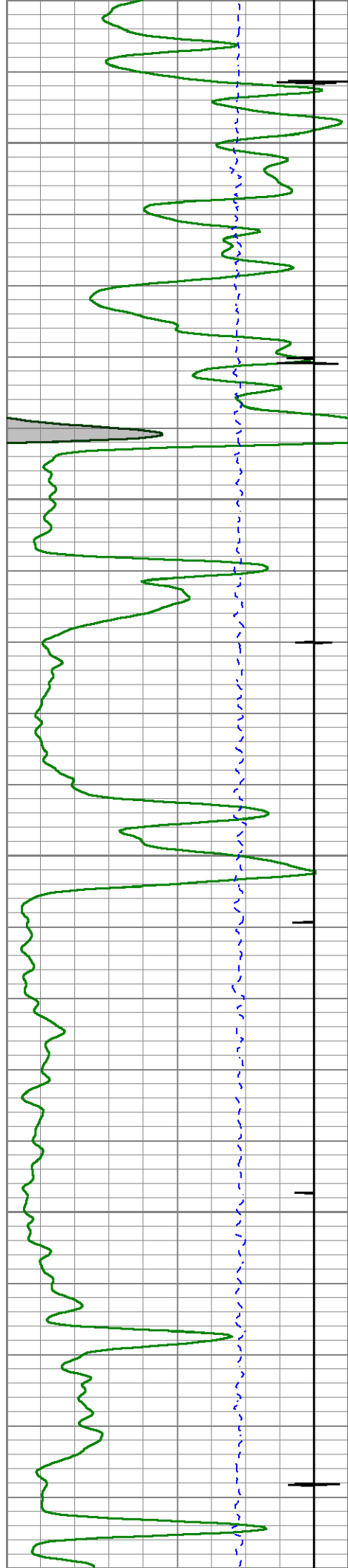
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11200

11250

11300





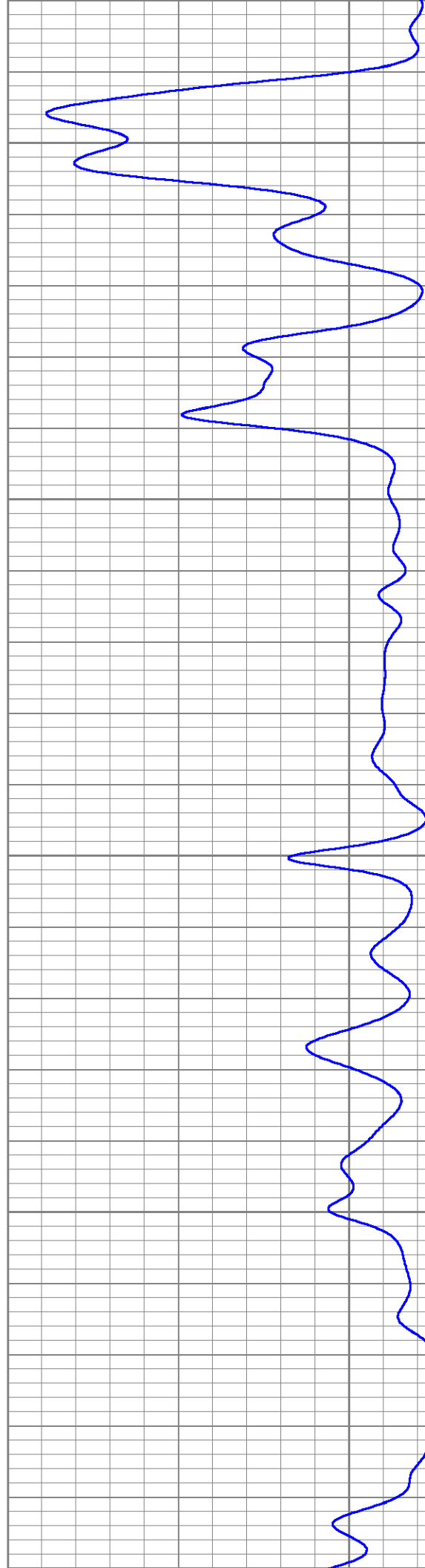
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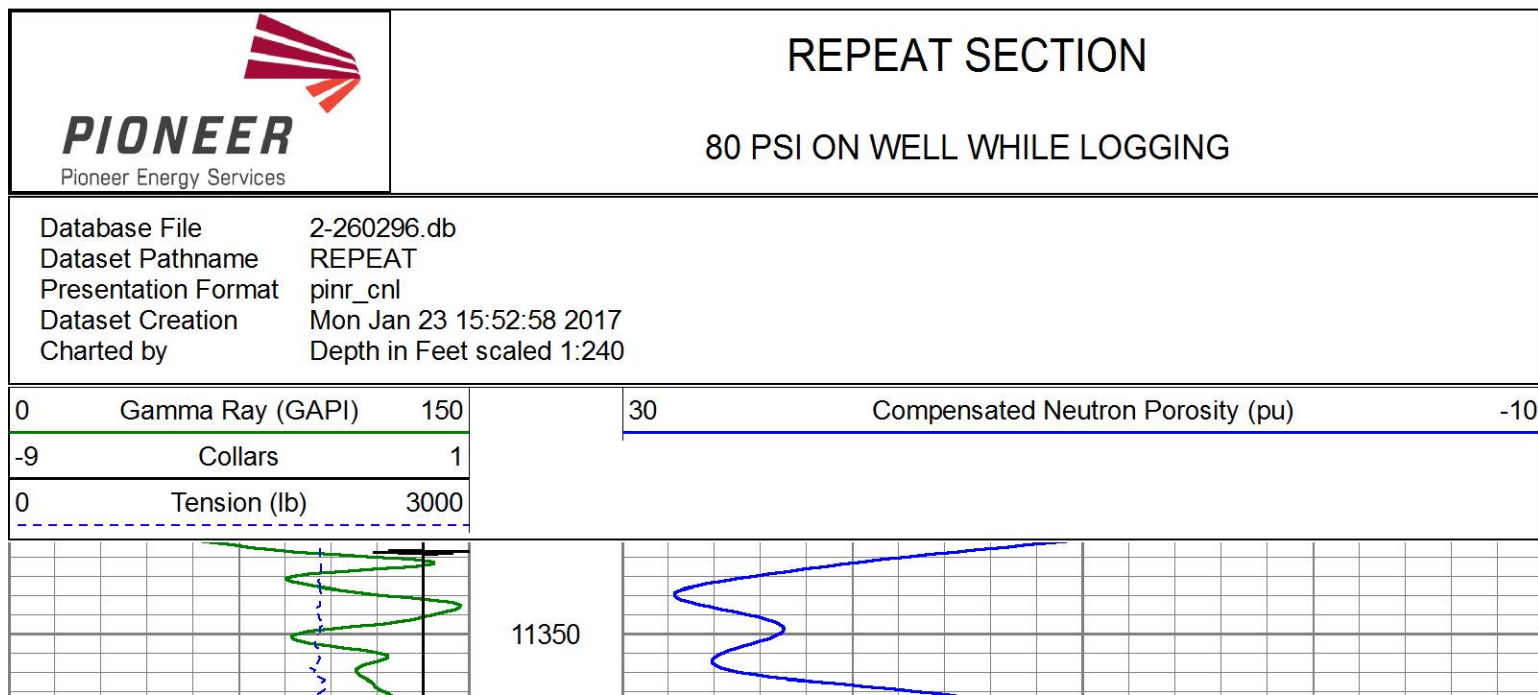
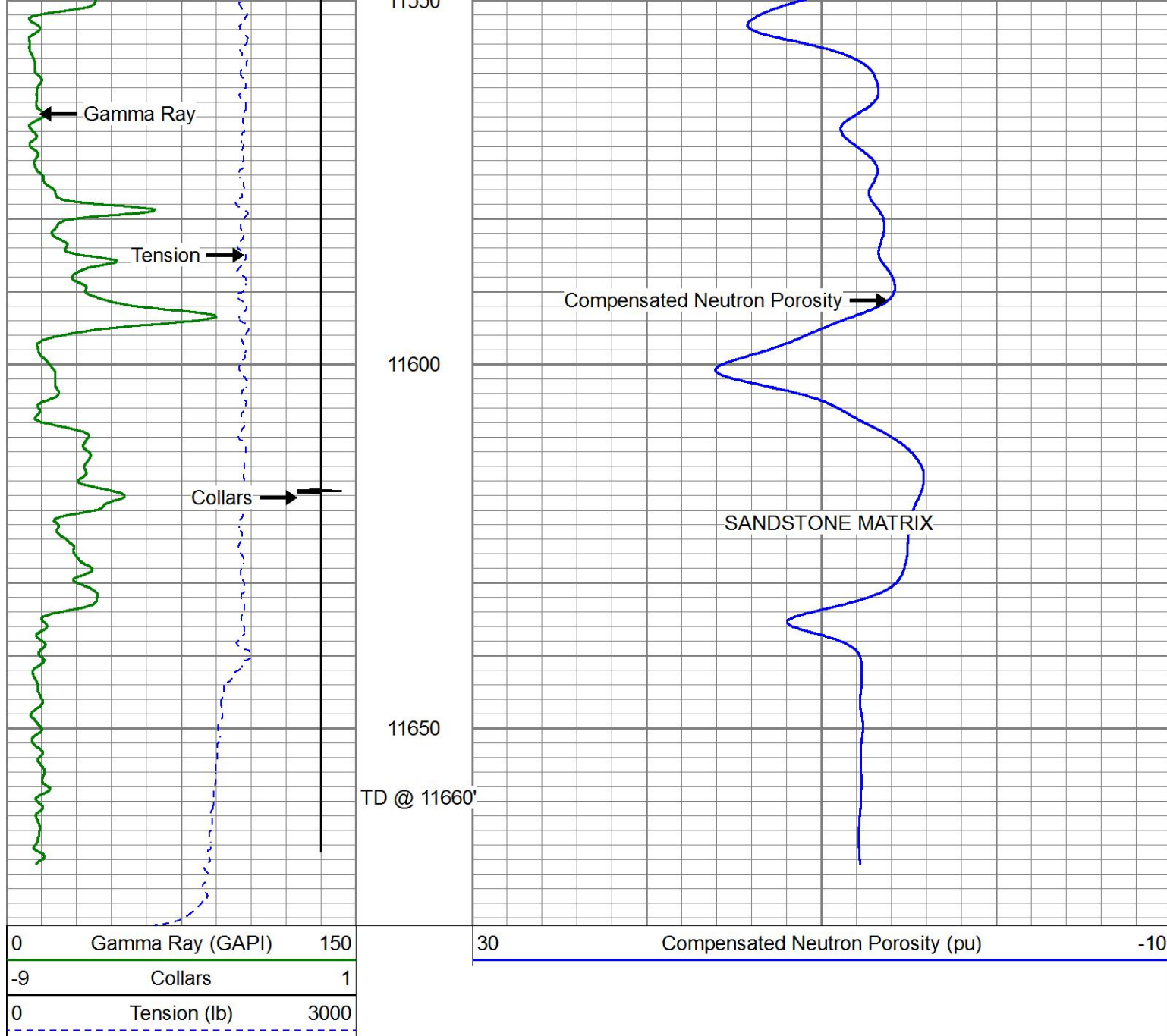
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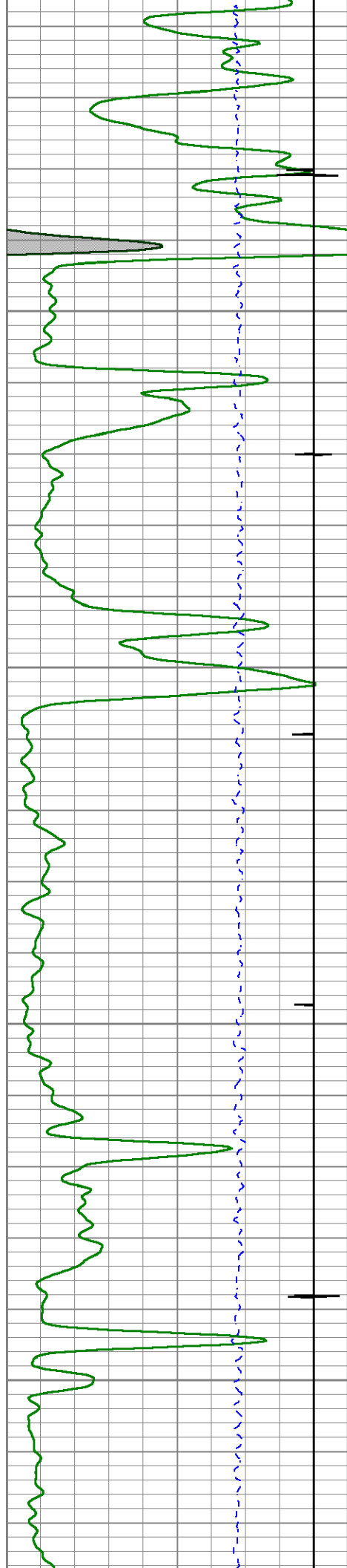
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11500

11550





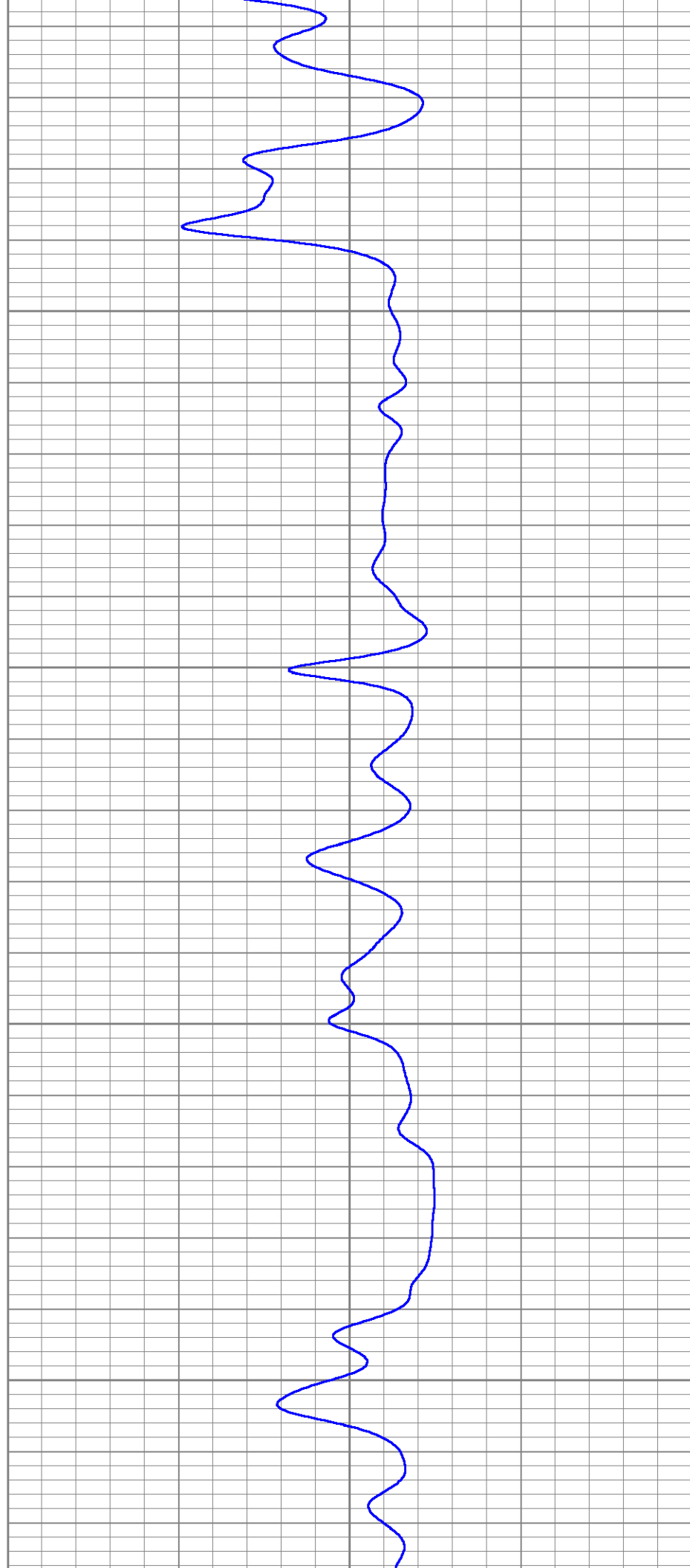


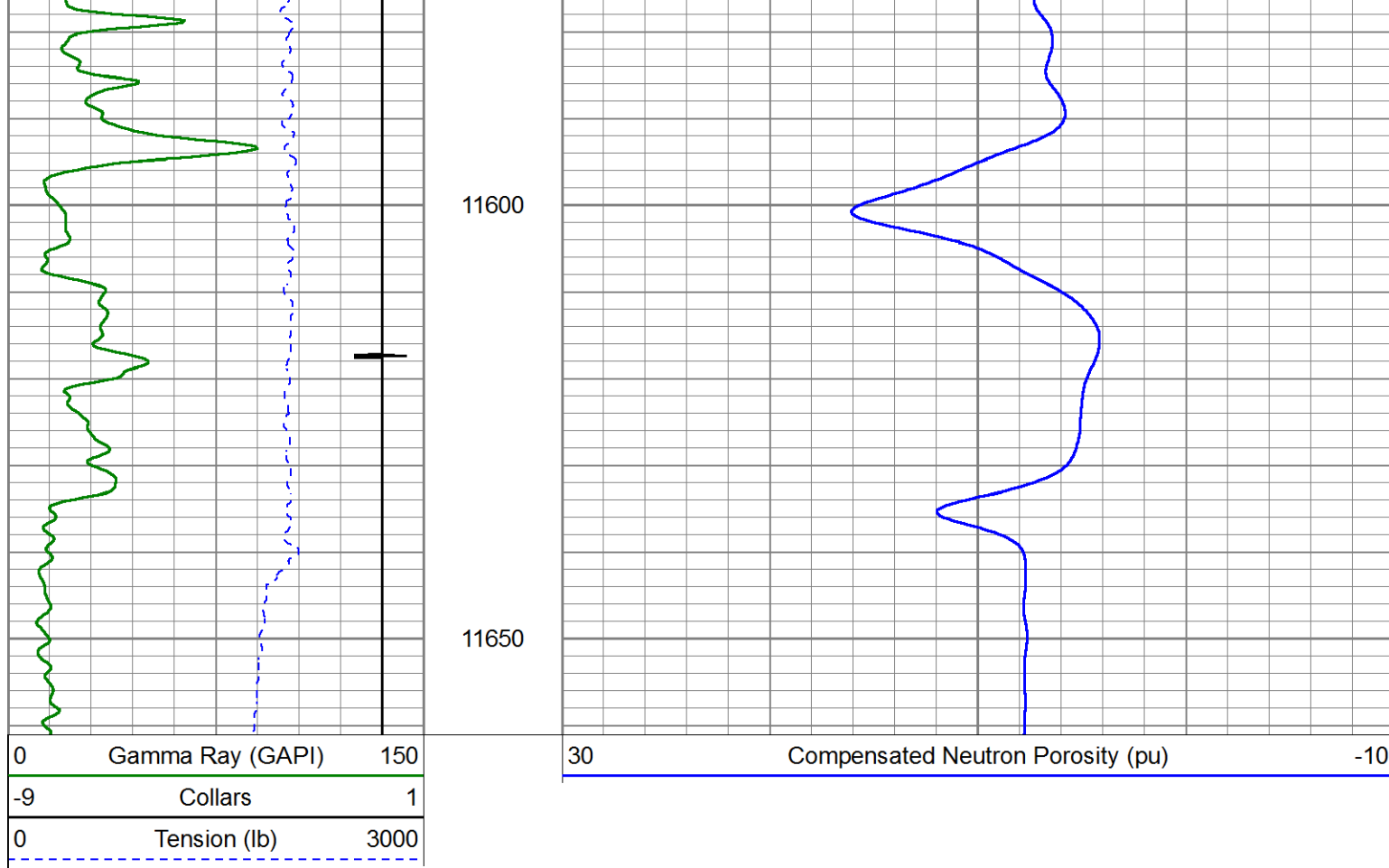
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11450

11500

11550





Calibration Report						
Database File	2-260296.db					
Dataset Pathname	MAIN					
Dataset Creation	Mon Jan 23 15:54:07 2017					
Compensated Neutron Calibration Report						
Serial Number:			120508			
Tool Model:			275BL			
CALIBRATION			Sun Jan 21 14:03:35 2017			
Detector		Readings		Target		Normalization
Short Space		4420.07	cps	0.00	cps	1.0000
Long Space		780.48	cps	0.00	cps	0.8000
PRE-SURVEY VERIFICATION						
Detector		Readings		Measured		Target
1)	Short Space	cps				
	Long Space	cps		pu	pu	
2)	Short Space	cps				
	Long Space	cps		pu		
3)	Short Space	cps				
	Long Space	cps		pu		
POST-SURVEY VERIFICATION						
Detector		Readings		Measured		Target
1)	Short Space	cps				

Serial Number:	FW1406-4	
Tool Model:	275 Probe Dig	
Performed:	Tue Jan 10 10:46:55 2017	
Calibrator Value:	1.0	GAPI
Background Reading:	0.0	cps
Calibrator Reading:	1.0	cps
Sensitivity:	0.6000	GAPI/cps

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Operator: M. GARCIA	GR	FW1406-4
Operator: J. GOFF	CNT	120508
Operator:		